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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/815,982	03/22/2001	Frank R. Miele	VWAVE.001CP2	7628

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GAZDZINSKI & ASSOCIATES
11440 WEST BERNARDO COURT, SUITE 375
SAN DIEGO, CA 92127

EXAMINER

JUNG, WILLIAM C

ART UNIT	PAPER NUMBER
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3737

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/815,982

Applicant(s)

MIELE ET AL.

Examiner

William Jung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8,10-14,19-24,36,38 and 41-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8,10-14,19-24,36,38 and 41-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-8, 10-14, and 19-24 have been considered but are moot in view of the new ground(s) of rejection.
2. Applicant's arguments filed January 5, 2004 have been fully considered but they are not persuasive.

All claimed limitation in claim 36 are anticipated by Suorsa et al. Suorsa et al clearly anticipate that the blood vessel wall is distinguished from the surrounding tissue from ultrasound imaging. The detection is based on processing amplitude of the signal, i.e. power representation where the signal is reduced. Whether the signal is reduced by scattering effect is incidental since the ultrasound signal is being attenuated by the tissue composition. Therefore, 35 USC 102(b) rejection on claim 36 based on Suorsa et al stands.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8, 10-14, 19-24, 36, and 41-54 are rejected under 35 U.S.C. 102(b) as being anticipated by *Wilson et al* (US 5,280,787).

Wilson et al anticipate all claimed features in claims 1-8, 10-14, 19-24, 36, 38, and 41-54.

Claims 1, 7, 8, 19, 36, 45, 46, 49, 51, and 53: Wilson et al disclose a method and apparatus where ultrasound transducer transmits acoustic signal into a tissue including blood

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vessel and receive acoustic signal reflecting from the tissue and blood vessel. The received signal is used to identify location of the blood vessel and its orientation by finding the angle of the vessel wall. In addition, Wilson et al disclose identifying local minimum and maximum of the blood vessel and distinguishing blood vessel wall (col. 2, line 65 – col. 4, line 56; col. 5, lines 22-55; col. 7, lines 20 –36; col. 7, line 55 – col. 8, line 27).

Claims 2-6, 10-14, 20-24, 41-44, 47, 48, 50, 52, and 54: Wilson et al further disclose that the blood vessel detection is evaluated from A-mode line with amplitude or power of the signal and determining the threshold (local minimum and maximum) to detect vessel wall (col. 7, line 55 – col. 8, line 27).

5. Claim 36 is rejected under 35 U.S.C. 102(b) as being anticipated by *Suorsa et al* (US 4,721,113).

Suorsa et al disclose an ultrasound system where the blood vessel and vessel wall are investigated using transmission of acoustic signal to a region of interest and analyzing the reflecting acoustic energy. The analysis includes differentiating the amplitude (A-mode) attenuation of the different tissue type and tissue motion. The tissue type identifies blood vessels from the surrounding tissue and the tissue motion or even blood flow can be analyzed. The blood flow or tissue motion causes artifact, which can be identified and suppressed by weighting (power average) or demodulation. Suorsa et al also disclose of analog-to-digital converter (ADC) where the digitized data are analyzed via computer (col. 1, line 49 – col. 2, line 7; col. 3, line 12 – col. 4, line 14).

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Wilson et al* in view of Adam et al (US 5,701,898).

Wilson et al substantially disclose all claimed features in claim 38. Wilson et al disclose a method and apparatus where ultrasound transducer transmits acoustic signal into a tissue including blood vessel and receive acoustic signal reflecting from the tissue and blood vessel. The received signal is used to identify location of the blood vessel and its orientation by finding the angle of the vessel wall. In addition, Wilson et al disclose identifying local minimum and maximum of the blood vessel and distinguishing blood vessel wall (col. 2, line 65 – col. 4, line 56; col. 5, lines 22-55; col. 7, lines 20 –36; col. 7, line 55 – col. 8, line 27). However, Wilson et al do not disclose measuring pressure from the blood vessel. Adam et al teaches that pressure measurement from blood vessel using ultrasound is an well know art. Adam et al specifically teaches that ultrasound is used to determine pressure in blood vessel as well as velocity across valve orifice or stenotic arteries (col. 9, line 30-53). Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made apply Adam et al's teaching of pressure measurement using ultrasound to Wilson et al's invention described above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William Jung, Ph.D. whose telephone number is 703-605-4364. The examiner can normally be reached on Mon-Fri 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 703-308-3552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WLS

October 24, 2004


ALI IMAM
PRIMARY EXAMINER